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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,947	07/31/2001	Guido Kersten	KERS3001/JJC/LCD	1529
23364	7590	02/16/2010		
BACON & THOMAS, PLLC			EXAMINER	
625 SLATERS LANE			KANG, INSUN	
FOURTH FLOOR				
ALEXANDRIA, VA 22314-1176			ART UNIT	PAPER NUMBER
			2193	
			MAIL DATE	DELIVERY MODE
			02/16/2010	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GUIDO KERSTEN and
HANS WILHELM BUNTSCHECK

Appeal 2008-005087
Application 09/917,947
Technology Center 2100

Decided: February 16, 2010

Before HOWARD B. BLANKENSHIP, JOHN A. JEFFERY, and
CAROLYN D. THOMAS, *Administrative Patent Judges*.

JEFFERY, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) (2002) from the Examiner's rejection of claims 1, 2, and 4-7. Claims 3 and 8-14 have been canceled. Br. 4. We have jurisdiction under 35 U.S.C. § 6(b) (2008).

We affirm-in-part.

STATEMENT OF THE CASE

Appellants invented a processing machine for bank notes. The machine includes a standardized interface 1 which can couple to different memory systems 2 for updating, replacing, or altering the machine's software. A memory system, having a suitable memory volume, size, robustness, and price, is selected depending on the particular application. *See generally* Spec. 1-3.

Claim 1 is reproduced below with the key disputed limitations emphasized:

1. A bank note processing machine comprising:

sensors, a transport system including a singling unit and at least one stacking unit, an input/output device, and

a control device with an associated memory which controls the elements of the bank note processing machine by means of software and/or data stored in the memory and

an interface which makes it possible to couple memory systems of different kinds to the bank note processing machine in order to alter, supplement or replace the software and/or data stored in the memory;

wherein the memory system has a drive and a storage medium which are suitable for optical and/or magnetic recording

wherein the transport system transports single bank notes singled by the singling unit along the sensors to the at least one stacking unit according to an evaluation of data obtained by the sensors by the control device.

The Examiner relies on the following as evidence of unpatentability:

Mazur US 5,909,502 June 1, 1999

THE REJECTION

The Examiner rejected claims 1, 2, and 4-7 under 35 U.S.C. § 103(a) as being unpatentable over Mazur. Ans. 3-6.¹

CLAIM GROUPING

Appellants nominally argue each claim. *See Br. 10-18.* Accordingly, we treat each claim separately.

Claim 1

Regarding independent claim 1, the Examiner finds that Mazur discloses all the recited elements, except for an explicit teaching that the memory system has a drive and a storage medium suitable for optical and/or magnetic recording. Ans. 3-4. The Examiner, however, reasons that since Mazur's flash card can be "any of several other types of memories [sic] known in the art," it would have been obvious to modify Mazur's system with a known memory system having a drive and a storage medium based on the user's preference, or to lower cost. Ans. 4-5.

¹ Throughout this opinion, we refer to (1) the Appeal Brief filed October 16, 2007 and (2) the Examiner's Answer mailed January 11, 2008.

Appellants argue that Mazur does teach: (1) an interface which makes it possible to couple memory systems of different kinds to the bank note processing machine, or (2) a memory system having a drive and a storage medium which are suitable for optical and/or magnetic recording. Br. 10-15. In particular, Appellants contend that Mazur does not teach the Personal Computer Memory Card International Association (PCMCIA) interface can be coupled to any memory system, and thus does not teach being coupled to a memory system with a drive and storage medium. Br. 10-14. In Appellants' view, this PCMCIA interface only works with flash memory of particular size and type and will not function with other sockets and flash memories. Br. 11-12. Appellants also argue that Mazur discloses a preference to employ flash memories such that one skilled in the art would not have been motivated to include a memory system having a drive and storage medium for optical and/or magnetic recording with Mazur's bank note machine. Br. 10-14. Appellants further assert that a memory system with a drive and storage medium are critical to the invention and yield unexpected results. Br. 14-15.

The issues before us, then, are as follows:

ISSUES

Under § 103, have Appellants shown that the Examiner erred by finding that Mazur teaches or suggests:

(1) "an interface which makes it possible to couple memory systems of different kind to the bank not processing machine" as recited in claim 1; and

(2) “the memory system has a drive and a storage medium which are suitable for optical and/or magnetic recording” as recited in claim 1?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Appellants' Disclosure

1. The Specification states “the interface provided is a standardized interface, in particular a PCMCIA interface. Such standardized interfaces show the advantage that a plurality of memory systems are already available on the market which can immediately be used without any further adaptation for updating, replacing or altering the software of the bank note processing machine.” Spec. 2, ll. 23-27.
2. Claim 2 recites “the interface is a standardized interface, in particular according to PCMCIA.” Br. 21, Claim 2.

Mazur

3. Mazur discloses a currency discrimination machine 10 having an optical scanhead 18, an optical encoder 32, a bill transport mechanism 16, a bill separating station 14, a bill accepting station 12, a bill stacking station 20, a resident (flash) memory 36, and flash card 40. Col. 3, ll. 41-52; col. 6, ll. 1-20; Fig. 2.
4. Mazur notes that the flash card 40 should be small, lightweight, sturdy, and adapted for slot 40 and socket 42. One type of flash card that satisfies these criteria is a FlashLiteTM Memory Card. Col. 8, ll. 3-11.

5. Mazur discloses that the FlashLite™ card includes an interface compatible with the Personal Computer Memory Card International Association (PCMCIA) industry standards. Col. 8, ll. 13-17 and 28-31.

6. Mazur states that “it is envisioned that other suitable types of flash cards will become available from other manufacturers.” Col. 8, ll. 11-13.

7. Mazur’s flash card 40 can be a flash memory or other types of memory known in the art, such as electrically erasable programmable read only memories (EEPROMs) or one-time programmable read-only memories (ROMs). Flash memory is preferred because of its versatility at a relatively low cost. Col. 7, l. 62 - col. 8, l. 2.

PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). “As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the interferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

If the Examiner’s burden is met, the burden then shifts to the Appellants to overcome the *prima facie* case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *See In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

ANALYSIS

Based on the record before us, we find no error in the Examiner's obviousness rejection of claim 1 which calls for, in pertinent part, "an interface which makes it possible to couple memory systems of different kinds to the bank note processing machine." At the outset, we note that the term "memory systems of different kinds" is not limited to any particular formats, protocols, or other characteristics. Given the term's scope and breadth, we find that different kinds of memory systems include flash cards manufactured by different companies.

Mazur discloses a bank note processing machine 10 having a flash card 40. FF 3. Mazur discloses the flash card 40 should have various characteristics, and notes that a FlashLite™ Memory Card satisfies these criteria. FF 4. One such characteristic of the FlashLite™ card is its compatibility with PCMCIA industry standards. FF 5. Mazur further envisions other types of flash cards from other manufacturers (i.e., memory systems of different kinds) that satisfy this desired criterion. *See FF 6.* We therefore disagree with Appellants that Mazur's interface is particular to one memory system and does not teach an interface that would allow different memory systems types. Br. 11.

Moreover, Mazur discloses that a PCMCIA interface is an industry *standard*. FF 5. Appellants also admit—and even claim—that the PCMCIA interface is a standardized interface that has the advantage of being able to

use plural memory systems. *See FF 1-2.* Therefore, contrary to Appellants' contentions (Br. 10-14), Mazur teaches an interface that can couple different kinds of memory systems (e.g., those manufactured by different companies and compatible with the PCMCIA standard) to the bank processing machine as recited in claim 1.

Additionally, Mazur's flash card 40 can be flash memory *or other types of memory known in the art*, such as EEPROMs or one-time programmable ROMs. FF 7. Given a memory's function to store data, each of these disclosed memory types—whether a flash memory, flash card, or other memory type—has a storage device. Moreover, based on Mazur's suggestion, we find that an ordinarily skilled artisan would have appreciated many other known memory types in the art at the time of the invention, including one that has a drive and storage medium suitable for optical or magnetic recording (e.g., a CD-ROM). An ordinarily skilled artisan would have also recognized that a magnetic or optically-recorded memory system with a drive and storage medium are inexpensive and can be considered even more convenient and user-friendly than those explicitly disclosed by Mazur. *See Dystar Textilsfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1368 (Fed. Cir. 2006).

Appellants also contend that an ordinarily skilled artisan would not have recognized from Mazur to select another memory system that can be used with the disclosed PCMCIA standardized interface. Br. 10, 13, 14. We disagree. As stated above, Mazur envisions selecting memory systems that are PCMCIA interface-compatible to satisfy Mazur's goal to enable using other manufactured flash cards. FF 6. Mazur also teaches using other types of memory devices with the bank processing machine. FF 7.

To be sure, Mazur does not explicitly state that the other types of memory known in the art use a PCMCIA interface. *See id.* But considering the background knowledge and creative steps an ordinarily skilled artisan would employ, Mazur suggests that different memory systems are compatible or can be used with the same bank processing machine (e.g., a system that has a PCMCIA interface). *See* FF 6-7; *see also* KSR, 550 U.S. at 418. For example, even if the known memory type is not directly compatible with the PCMCIA interface, one skilled in the art using his or her background knowledge would have appreciated that these other known memory types could use an adapter (e.g., a cable) so that the memory type can be used with the disclosed interface and machine 10—a predictable use of prior art elements according to their established functions—an obvious improvement. *See id.*

Lastly, Mazur discloses examples and a preference for a flash memory system. *See* FF 7. Mazur, however, does not exclude or teach away from using other types of memory systems, including a memory system that has a drive and storage system suitable for optical and/or magnetic recording as recited in claim 1. Appellants have also not provided the necessary evidence to demonstrate that the drive and storage medium memory is critical to the invention and yields unexpected results. *See* Br. 14. Although Appellants cite passages from the Specification that discuss the advantages of a magnetic or optical recording medium (Br. 14), they do not explain this feature's criticality or any unexpected results obtained from this feature. Based on the record before us, Mazur and the background knowledge possessed by an ordinary artisan provide ample reason with some rational underpinning for selecting a memory system with a drive and storage

medium suitable for optical and/or magnetic recording as recited in claim 1 to support a legal conclusion of obviousness. *See KSR*, 550 U.S. at 418.

For the foregoing reasons, Appellants have not shown error in the obviousness rejection of independent claim 1 based on Mazur.

Claim 2

Regarding claim 2, the Examiner finds that Mazur teaches all the recited elements, including a PCMCIA interface. Ans. 5.

Appellants rely on the arguments presented for claim 1 and repeat that Mazur fails to disclose or teach using a memory system having a drive and storage medium suitable for optical and/or magnetic recording using a PCMCIA interface Br. 16. The issues, therefore, are the same as those in connection with claim 1. We are not persuaded by Appellants' arguments for the above reasons set forth with respect to claim 1.

Claim 4

Regarding claim 4, the Examiner finds that Mazur teaches a memory having a non-volatile area and storing software or data in non-volatile area of memory after coupling the memory system to the interface. Ans. 6.

Appellants rely on the arguments presented for claim 1 (Br. 16-17), and we refer Appellants to our previous discussion. Appellants further contend that column seven, lines fifty-three through sixty-seven of Mazur does not teach the features of claim 4, but rather describes the flash card 40. Br. 16. Appellants also argue Mazur does not provide the requisite motivation to provide the features recited in claim 4. Br. 16-17.

The issue before us, then, is as follows:

ISSUE

Under § 103, have Appellants shown that the Examiner erred by finding that Mazur teaches the “memory has a nonvolatile area, and after coupling of the memory system to the interface the software and/or data stored in the memory system are stored in the nonvolatile area” as recited in claim 4?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Mazur

8. Mazur’s flash card 40 is programmed with updated software code used to update the information within the resident memory 36 for the currency discrimination machine 10. Col. 2, ll. 29-40, col. 7, ll. 43-62, and col. 8, ll. 40-58.

9. Upon inserting Mazur’s flash card 40 into socket 42, the CPU 30 compares the updated software in the flash card memory 40 with the contents in resident flash memory 36. If the contents are the same, an audible or visual message is provided to the user. If the contents are different, the sectors in memory 36 are erased, and new code is copied from the flash card 40 to the memory 36. Upon completing the memory transfer, an audible or visual message is provided. The flash card 40 can then be removed from the currency discrimination machine 10. Col. 2, ll. 29-30 and col. 8, ll. 40-57.

10. Resident memory 36 includes non-volatile flash memory, EEPROMs, and random access memories (RAMs). Col. 6, ll. 1-33.

11. The resident memory 36 is the memory for the currency discrimination machine 10. Col. 4, ll. 12-21 and col. 6, ll. 47-51.

ANALYSIS

Based on the record before us, we find no error in the Examiner's obviousness rejection of claim 4. Mazur transfers software updates for the bank note processing machine located in flash card 40 to a resident memory 36. FF 8-9. Such resident memory 36 is associated with the control device or CPU 30 (*see* FF 11) and includes flash memory that is nonvolatile, such as EEPROM. FF 10. Mazur therefore discloses a memory system 40 that transfers software to an associated non-volatile memory 36 of a control device 30 after the memory system 40 is coupled to its interface. FF 8-11.

For the foregoing reasons, Appellants have not shown error in the obviousness rejection of claim 4 based on Mazur.

Claim 5

Regarding claim 5, the Examiner finds that Mazur teaches a memory having a volatile area and storing software or data in volatile area of memory after coupling the memory system to the interface. Ans. 6.

Appellants rely on the arguments presented for claim 1 (Br. 17), and we refer Appellants to our previous discussion. Appellants further contend that Mazur does not provide the needed motivation to provide the features recited in claim 5. *Id.*

The issue before us, then, is as follows:

ISSUE

Under § 103, have Appellants shown that the Examiner erred by finding that Mazur discloses or teaches the “memory has a volatile area, and after coupling of the memory system to the interface the software and/or data stored in the memory system are stored in the volatile area” as recited in claim 5?

ANALYSIS

Based on the record before us, we find no error in the Examiner’s obviousness rejection of claim 5. Mazur discloses the resident memory 36 includes flash memory that is RAM or a volatile memory having a volatile area. *See* FF 10. As for the remaining claimed elements, we refer Appellants to the previous discussion of claim 4.

For the foregoing reasons, Appellants have not shown error in the obviousness rejection of claim 5 based on Mazur.

Claim 6

Regarding claim 6, the Examiner finds that Mazur teaches the recited limitation. Ans. 6.

Appellants rely on the arguments presented for claim 1 (Br. 17), and we refer Appellants to our previous discussion. Appellants further contend that column seven, lines fifty-three through sixty-seven and column eight, lines thirteen through forty of Mazur has no relation to the features recited in claim 6, but rather describes the flash card 40. *Id.* Appellants also argue

that Mazur does not provide the needed motivation to provide the features recited in claim 6. *Id.*

The issue before us, then, is as follows:

ISSUE

Under § 103, have Appellants shown that the Examiner erred by finding that Mazur discloses or teaches “data obtained in the bank note processing machine during operation are stored in the memory system” recited in claim 6?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Mazur

12. Flash card 40 contains pre-programmed software reflecting the most recent magnetic or optical characteristics of the currency denominations to be evaluated, the most recent operating code for the currency discrimination machine 10, and an operating code associated with one of the modes of operation of the currency discrimination machine 10. Col. 2, ll. 29-33 and col. 7, ll. 55-62.

ANALYSIS

Based on the record before us, we find error in the Examiner’s obviousness rejection of claim 6. Mazur transfers software updates for the bank note processing machine located in flash card 40 to a resident memory 36. FF 9. However, Mazur does not transfer data stored in the resident

memory 36 or elsewhere in the processing machine to the memory system 40 during operations. *See* FF 8, 9, and 12.

The Examiner relies on Mazur's discussion (FF 9) of providing an audible or visible message during updating to teach this limitation. Ans. 12. While this message is produced during the machine's operation, this message is not also stored in the memory system 40 as required by claim 6. Moreover, while the flash card 40 contains pre-programmed software reflecting the most recent magnetic or optical characteristics and codes associated with the currency denominations or the machine (*see* FF 12), Mazur does not further disclose, teach, or suggest that this stored data was obtained during the bank note processing machine's operations.

For the foregoing reasons, Appellants have shown error in the obviousness rejection of claim 6 based on Mazur.

Claim 7

Regarding claim 7, the Examiner finds that Mazur teaches the software stored in the memory system 40 is stored in encoded form and the controller 30 is set up to decode the encoded software. Ans. 6. In particular, the Examiner explains that software code is encoded and decoded for execution. Ans. 12.

Appellants rely on the arguments presented for claim 1 (Br. 18), and we refer Appellants to our previous discussion. Appellants further contend that column eight, lines forty through fifty-eight are silent about encoding software or decoding the software using a controller. *Id.* Appellants also argue that Mazur does not provide the needed motivation to provide the features recited in claim 7. *Id.*

The issue before us, then, is as follows:

ISSUE

Under § 103, have Appellants shown that the Examiner erred by finding that Mazur teaches “software and/or data stored in the memory system are stored in encoded form, and the controller is set up to decode the encoded software and/or data” as recited in claim 7?

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence:

Mazur

13. Mazur teaches that once the master characteristic patterns are stored with the machine 10, the pattern generated by scanning a bill is compared by the CPU 30 to each prestored master characteristic patterns. The CPU 30 is programmed to identify the denomination of the scanned bill. The currency discrimination machine 10 can operate in several modes. Col. 4, l. 13 – col. 5, l. 67

ANALYSIS

Based on the record before us, we find no error in the Examiner’s obviousness rejection of claim 7. At the outset, we note that claim 7 does not recite that the software or data stored in the memory system is encrypted. Thus, as the Examiner explains (Ans. 12), the software of the memory system 40 includes code (e.g., software or operating codes) or data in encoded form. FF 8 and 12. Additionally, to execute the software, the code

must be interpreted or decoded by the controller or control device 30 so that the components associated with Mazur's processing machine 10 (e.g., optical scanhead 18 and bill transport mechanism 16) can function accordingly. *See* FF 3 and 13. We therefore find that Mazur teaches software stored in the memory system 40 in an encoded form and a controller 30 configured to decode the encoded software as recited in claim 7.

For the foregoing reasons, Appellants have not shown error in the obviousness rejection of claim 7 based on Mazur.

CONCLUSIONS

Appellants have: (1) not shown that the Examiner erred in rejecting claims 1, 2, 4, 5, and 7 under § 103, and (2) have shown that the Examiner erred in rejecting claim 6 under § 103.

ORDER

The Examiner's decision rejecting claims 1, 2, and 4-7 is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2009).

AFFIRMED-IN-PART

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